

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

1. (Original) A connector for use in making an artificial, fluid-tight connection between an end portion of a tubular graft conduit and a side wall of a tubular body conduit in a patient via an artificially formed aperture in the side wall of the tubular body conduit so that the tubular graft conduit extends from the tubular body conduit outside of the tubular body conduit and the patient's body fluid can flow between lumens of the tubular graft conduit and the tubular body conduit via the connection, the connector comprising:

a structure that is annularly continuous but annularly enlargeable and configured for disposition substantially concentric with the tubular graft conduit, the structure including:

(a) a plurality of cantilevered, longitudinal, tissue-piercing members disposed in an annular array that is substantially concentric with the annularly continuous structure, a cantilevered length of each of the tissue-piercing members being great enough to

allow the tissue-piercing member, in use, to pass all the way through the side wall of the tubular graft conduit and to become partly extraluminal of the tubular graft conduit, the tissue-piercing members having strength sufficient to secure the tubular graft conduit to the connector when thus passed through the side wall of the tubular graft conduit; and

(b) a plurality of retention fingers disposed in an annular array that is substantially concentric with the annularly continuous structure, the retention fingers being extendable, in use, radially out relative to the artificially formed aperture and inside the tubular body conduit, the retention fingers having length sufficient when thus extended radially out to engage the inside of the side wall of the tubular body conduit at locations annularly around the artificially formed aperture, and the retention fingers having strength sufficient when thus engaged with the inside of the side wall of the tubular body conduit to at least help retain the tubular graft conduit in fluid-tight, artificial connection with the tubular body conduit.

2. (Original) The connector defined in claim 1 wherein the structure comprises:

a ring having convolutions that repeatedly traverse a circumference of the structure.

3. (Original) The connector defined in claim 1 wherein the retention fingers are resiliently biased to extend substantially radially out to engage the inside of the side wall of the tubular body conduit, and wherein the retention fingers are additionally configured to elastically deflect substantially parallel to an axis about which the structure is annular.

4. (Original) The connector defined in claim 1 wherein the structure is at least partly made of nitinol.

5. (Original) The connector defined in claim 1 wherein the structure is at least partly made of stainless steel.

6. (Original) Apparatus for use with a connector as defined in claim 1 comprising:

a tubular structure axially reciprocable relative to the connector into and out of a position in which the tubular structure is substantially concentric outside the connector and releasably holds the retention fingers substantially parallel to an axis about which the structure is annular.

7. (Original) The connector defined in claim 1 wherein the retention fingers initially extend substantially parallel to an axis about which the structure

is annular and are configured for plastic deformation to extend substantially radially outwardly to engage the inside of the side wall of the tubular body conduit.

8. (Currently amended) A connector for use in connecting a tubular body tissue graft to the side wall of a patient's tubular body tissue conduit so that the lumen of the graft communicates with the lumen of the conduit through an aperture in the side wall of the conduit to permit body fluid flow between the lumens without leakage of body fluid to the outside of the graft and the conduit adjacent the connector comprising:

an annularly continuous annular structure having first and second axially adjacent substructures, the first substructure being configured to be disposed inside the conduit, wherein the first substructure comprises a plurality of annularly spaced struts that are configured to extend from a first position in which the struts are substantially parallel to an axis with which the annular structure is substantially coaxial to a second position in which the struts are radially outward and substantially perpendicular to the axis to engage the inside of the side wall of the conduit at locations that are disposed annularly around the aperture, and the second substructure being configured to engage the inside of the graft at further locations that are also disposed annularly around the aperture.

9. (Original) The connector defined in claim 1 wherein the second substructure is configured to penetrate the tissue of the graft adjacent the further locations.

10. (Original) The connector defined in claim 1 wherein the first and second substructures are configured to resiliently press the graft and the conduit into annular contact with one another annularly around the aperture.

11. (Original) The connector defined in claim 1 wherein the structure further comprises:  
an annular ring.

12. (Original) The connector defined in claim 1 wherein the second substructure comprises a plurality of annularly spaced prongs.

13. (Original) The connector defined in claim 6 wherein each prong has a free end that is configured to penetrate the tissue of the graft.

14. (Original) The connector defined in claim 7 wherein the free end of each prong is sharply pointed to facilitate penetration of the tissue of the graft by the prong.

15. (Original) The connector defined in claim 1 wherein the structure further comprises an annular ring, and wherein the first and second substructures are attached to the ring at respective locations that are spaced from one another along the ring parallel to an axis about which the ring is annular.

16. (Original) The connector defined in claim 9 wherein the plurality of struts are spaced annularly around the ring.

17. (Original) The connector defined in claim 10 wherein the struts are resiliently biased to extend radially out from the ring.

18. (Original) The connector defined in claim 11 wherein the struts are configured to elastically deflect substantially parallel to an axis with which the annular structure is substantially coaxial.

19. (Original) Apparatus for use with a connector as defined in claim 12 comprising:

a tubular structure axially reciprocable relative to the connector into and out of a position in which the tubular structure is substantially concentric outside the annular structure and releasably holds the struts substantially parallel to the axis with which the

annular structure is substantially coaxial in the first position.

20. (Original) The connector defined in claim 9 wherein the second substructure comprises a plurality of prongs spaced annularly around the ring.

21. (Original) The connector defined in claim 14 wherein the prongs are configured to extend radially out from the ring.

22. (Original) The connector defined in claim 1 wherein the annular structure is at least partly made of nitinol.

23. (Original) The connector defined in claim 1 wherein the annular structure is at least partly made of stainless steel.